ABSTRACT OF THE DISCLOSURE

The present invention describes polynucleotides that have been discovered to correlate to the relative intrinsic sensitivity or resistance of cells, e.g., breast cell lines, to treatment with compounds that interact with and modulate, e.g., inhibit, protein tyrosine kinases, such as, for example, members of the Src family of tyrosine kinases, e.g., Src, Fgr, Fyn, Yes, Blk, Hck, Lck and Lyn, as well as other protein tyrosine kinases, including, Bcr-abl, Jak, PDGFR, c-kit and Eph receptors. These polynucleotides have been shown, through a weighted voting cross validation program, to have utility in predicting the resistance and sensitivity of breast cell lines to the compounds. The expression level or phosphorylation status of some polynucleotides is regulated by treatment with a particular protein tyrosine kinase inhibitor compound, thus indicating that these polynucleotides are involved in the protein tyrosine kinase signal transduction pathway, e.g., Src tyrosine kinase. Such polynucleotides, whose expression levels correlate highly with drug sensitivity or resistance and which are modulated by treatment with the compounds, comprise polynucleotide predictor or marker sets useful in methods of predicting drug response, and as prognostic or diagnostic indicators in disease management, particularly in those disease areas, e.g., breast cancer, in which signaling through the protein tyrosine kinase pathway, such as the Src tyrosine kinase pathway, is involved with the disease process.